

## REMARKS

Applicants have added claim 21 in the above-captioned application. No new matter has been added. Claims 8, 17 and 18 have been canceled without prejudice or disclaimer. Thus, claims 1-7, 9-16 and 19-21 are pending.

The Office Action rejected claims 1-6, 19 and 20 under 35 U.S.C. 102(b) as being anticipated by Thakkar, U.S. Patent No. 5,512,089, ("Thakkar"). Applicants respectfully disagree with the rejection. Applicants submit that the amendments to the claims submitted herewith render moot this issue. Applicants submit that Thakkar teaches an ink composition comprising pigment and polypropylene glycol in ratios ranging from 5.8:1 (Example 1) to 3.5:1 (Example 2) pigment to polypropylene glycol. The present invention claims an ink formulation with a minimum ratio of pigment to polypropylene glycol of about 1:1 to about 1:2.5. Thakkar does not disclose any ink compositions wherein the weight percentage of pigment is equal to that of polypropylene glycol, much less one where the weight percentage of pigment is less than that of polypropylene glycol. As such, Applicants submit that Thakkar does not anticipate the present invention.

The Office Action rejected claims 1-6, 19 and 20 under 35 U.S.C. 102(a) as being anticipated by EP 1 114 850. Applicants submit that the present invention is not anticipated by EP 1 114 850. The Office Action states that "EP 1 114 850 teaches an ink composition comprising a colorant, glycerin, a glycol compound and water." However, the Office Action seems to dismiss the presence of glycerin in EP 1 114 850 even though the specification and the claims of the patent clearly indicate that glycerin is a required component of the invention. As the specification notes, "the ink composition containing glycerin and a glycol compound in combination, as compared with an ink composition wherein any one of glycerin and the glycol compound is solely contained, can realize a higher capability of providing suitable viscosity,

higher print density, and better anti-clogging properties.” [¶30, Lines 55-58]. Thus, not only does EP 1 114850 differ from the present invention, but it also teaches away since it requires a glycerin component.

Lastly, EP 1 114 850 teaches an ink composition comprising pigment and polypropylene glycol in ratios ranging from 15:1 (Example W2) to 1.5:1 (Comparative Example W4) pigment to polypropylene glycol. The present invention claims an ink formulation with a minimum ratio of pigment to polypropylene glycol of about 1:1 to about 1:2.5. EP 1 114 850 does not disclose any ink compositions wherein the weight percentage of pigment is equal to that of polypropylene glycol, much less one where the weight percentage of pigment is less than that of polypropylene glycol. As such, Applicants submit that EP 1 114 850 does not anticipate the present invention.

The Office Action rejected claims 8-12 and 14-18 under 35 U.S.C. 103(a) as being unpatentable over Thakkar. Applicants respectfully disagree with the rejection and respectfully request reconsideration. The Office Action admits that Thakkar fails to provide any examples of the claimed ratio of pigment to polypropylene glycol. Applicants contend that based on the teachings of Thakkar it would not have been obvious to a person of ordinary skill in the art to combine polypropylene glycol, pigment, and water in the disclosed ratios. In fact, Thakkar actually teaches away from the present invention. Thakkar teaches an ink composition containing a minimum ratio of pigment to polypropylene glycol of 3.5:1. As previously mentioned, the present invention teaches ink compositions containing ratios of pigment to polypropylene as low as 1:2.5. That is, Thakkar teaches that at least 3.5 times as much pigment as polypropylene glycol must be used to practice its invention. In contrast, the present invention teaches that the amount of pigment used can be as low as 2/5 of the amount of

polypropylene used. Based on the foregoing, Applicants submit that the present invention is not obvious in view of Thakkar.

The Office Action rejected claims 8-12 and 14-18 under 35 U.S.C. 103(a) as being unpatentable over EP 1 114 850. Applicants do not believe that the present invention is obvious in view of EP 1 114 850. EP 1 114 850 teaches an ink composition comprising a surface-modified pigment, glycerin, a glycol compound, and water. While the specification makes it clear that glycerin must be used, it also makes it clear that any of a number of glycol compounds may be used for the ink composition. A person of ordinary skill in the art applying or modifying the teachings of EP 1 114 850 would likely create an ink composition comprising glycerin and any glycol from the list of preferred glycol compounds. However, the ink composition of the present invention does not contain glycerin but does comprise a particular glycol, namely polypropylene glycol. As such, EP 1 114 850 does not render the present invention obvious under section 103.

Further, Applicants submit that for reasoning similar to that applied to Thakkar it would not have been obvious to a person of ordinary skill in the art to combine polypropylene glycol, pigment, and water in the disclosed ratios based on the teachings of EP 1 114 850. Again, the Office Action admits that EP 1 114 850 fails to exemplify the ratio of pigment to polypropylene glycol claimed in the present invention. EP 1 114 850 teaches an ink composition containing a minimum ratio of pigment to polypropylene glycol of 1.5:1. As previously mentioned, the present invention teaches ink compositions containing ratios of pigment to polypropylene as low as 1:2.5. That is, EP 1 114 850 teaches that at least 1.5 times as much pigment as polypropylene glycol must be used to practice its invention. In contrast, the present invention teaches that the amount of pigment used can be as low as 2/5 of the amount of polypropylene used.

Further, EP 1 114 850 does not recognize the criticality associated with polypropylene glycol. As discussed, the specification discloses a laundry list of glycol compounds that may be used alone or as a mixture of two or more compounds including triethylene glycol, tetraethylene glycol, dipropylene glycol, polyethylene glycol, oxyethylene-oxypropylene copolymer and polypropylene glycol. [¶38, Lines 35-36]. Applicants further contend that EP 1 114 850 does not teach or suggest all of the unexpected benefits associated with the present invention. For example, EP 1 114 850 does not address or solve the problem of improving the wet fastness of pigments as does the present invention. Based on the foregoing, Applicants submit that EP 1 114 850 does not render the present invention obvious.

The Office Action rejected claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al., U.S. Patent No. 4,395,287 ("Kobayashi"). Applicants disagree that the present invention is obvious in view of Kobayashi. Kobayashi teaches an ink composition comprising a recording agent and a liquid vehicle, characterized in that a polyalkylene glycol having an average molecular weight of 150 to 350 (A component) and a polyalkylene glycol having an average molecular weight of 400 to 750 (B component) are incorporated in combination in said material. [Abstract] [emphasis added]. The specification notes that using a polyalkylene glycol with an average molecular weight of 400 to 750 alone is "disadvantageously solidified due to its solidifying point around normal temperature, when the environmental temperature is lowered." [Col. 4, Lines 10-13]. To counteract the aforementioned disadvantage, Kobayashi combined a polyalkylene glycol with an average molecular weight of 150 to 350 with the higher molecular weight polyalkylene glycol. Per Kobayashi, "[t]he present invention is based on a discovery that a synergetic effect ... can be exhibited by incorporating both of these materials in combination." [Col. 4, Lines 17-22] [emphasis added]. Further, Kobayashi indicates that either polyethylene glycol or polypropylene glycol may be used as components A and B. However,

polyethylene glycol is a material that Applicants specifically demonstrate in the comparative examples of the present application as not having the same benefits and achieving the same results as polypropylene glycol in the composition of the present invention. Also, although Kobayashi indicates that pigments are effectively used with its invention, all of its examples are dye based as opposed to pigment based.

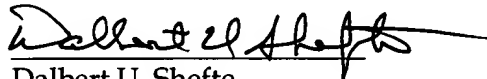
The present invention teaches the use of polypropylene glycol. Further, the present invention teaches that polypropylene glycol with a molecular weight of 425 is most preferred. In contrast, Kobayashi teaches that a glycol with a molecular weight greater than 400 creates disadvantages that must be countered by combining it with a lower molecular weight glycol. In fact, Kobayashi teaches away from using a single polyalkylene glycol. As such, a person applying or modifying the teachings of Kobayashi would likely create an ink composition comprising a combination of polyalkylene glycols of varying molecular weights rather than a polypropylene glycol with a molecular weight of 425, for example, as taught in the present invention.

Applicants also contend that there are unexpected results associated with the present invention. Specifically, Applicants' specification demonstrates the unexpected results associated with the present invention. For example, Example 3 in Table 16 shows the desired dwell performance achieved with polypropylene glycol and the undesired dwell performance achieved with polyethylene glycol. Applicants' specification also demonstrates the unexpected benefit to wet fastness with the claimed combination of polypropylene glycol and pigment. See, for example, Examples 5-8 demonstrate the superior wet fastness achieved with the present invention. In contrast, Comparative Examples 1 and 2 demonstrate that all glycols do not produce equal results. Accordingly, Applicants contend that there are unexpected results

associated with the present invention. Thus, Applicants respectfully request reconsideration and withdrawal of the rejections.

In view of the foregoing, it is respectfully urged that the present claims are in condition for allowance and reconsideration is requested. An early notice to this effect is earnestly solicited. Should there be any questions regarding this application, the Examiner is invited to contact the undersigned at the number shown below.

Respectfully submitted,



Dalbert U. Shefte  
Registration No. 18,174  
Kennedy Covington Lobdell  
& Hickman, L.L.P.  
Hearst Tower, 47<sup>th</sup> Floor  
214 N. Tryon Street  
Charlotte, North Carolina 28202  
Telephone (704) 331-7569  
-- Attorney for Applicants